**Water, Energy, and Waste: Integrating Themes of Sustainability Into Your Classroom**

**1. Lesson Title:** “Water Pollution” **2. Grade/Age of Students:** 1st grade

**3. Materials/Equipment/Worksheets:**

“Water Pollution for Kids” video – https://www.youtube.com/watch?v=93BqLewm3bA

Buckets of clean water

Household trash items (Banana peel, soda cans/bottles, pieces of paper plates etc.)

Vegetable oil

Ziploc bags of dirt

Strainer and Tongs

**4.** **Pre-assessment of Students Knowledge & Skills:**

**(a)** Students have been learning about how water effects our lives, including the Water Cycle and Water Conservation. Although students have a limited understanding of how water pollution occurs, they are not fully familiar with the various ways in which it is caused or how to actively prevent it.

**(b)** This information was obtained through observation of the students during the workshop phase of previous lessons in which I was able to observe their level of understanding in this capacity.

**5. Content-Specific Standard(s):**

CCSS.ELA-LITERACY.RI.1.1

Ask and answer questions about key details in a text.

CCSS.ELA-LITERACY.RI.1.4

Ask and answer questions to help determine or clarify the meaning of words and phrases in a text.

CCSS.ELA-LITERACY.RL.1.2

Retell stories, including key details, and demonstrate understanding of their central message or lesson

**6. Danielson Framework:**

3b: Using Questioning and Discussion Techniques

3c: Engaging Students in Learning

**7. Objectives:**

Students will be able to identify the lasting effects of water pollution by conducting a Water Pollution Experiment and writing a paragraph giving at least 1-2 reasons why it is important to prevent water pollution.

**8. Procedure**:

1. **Introduction and motivation**

*“Good morning 1st grade! As you know we have been working on our Water Science Unit… examining the different ways in which water effects our lives. Now before we begin who can tell me what they learned yesterday about water pollution?*

*“Today we are going to learn even more about water pollution by doing a very fun and eye opening experiment showing how water pollution occurs and figuring out if it can be undone once it happens.”* (5 minutes)

**b) Activities/Steps:**

1. ***Direct Instruction***- I will then review yesterday’s vocabulary terms which includes: Pollution/Pollutants, Toxic and Organisms. I will also have the students share some of the things that they discussed during yesterday’s “Round Table” discussion.

Next, I will introduce our Water Pollution Experiment to test whether or not water pollution can be undone once it occurs. I will then show the students a brief video titled “Water Pollution for Kids” (https://www.youtube.com/watch?v=93BqLewm3bA). (10 minutes)

2. ***Work Time*** - I will place the students into groups of 4. I will then give each group a bucket filled with clean water. I will also supply each group with a pair of tongs, a strainer, a cup of vegetable oil, pieces of broken paper plates, a banana peel, and soda can, a plastic yogurt container, and a Ziploc back of dirt. I will then ask each group to think about things that they feel could prevent water pollution as they conduct their experiments.

I will instruct the children to take turns placing the items or “pollutants” into their buckets of water. Once each bucket has been filled with pollutants, I will then have the students take turns in trying to remove the pollutants from the water using the tongs and the strainer. I will give the students about 10 minutes to remove the pollutants from the water. Next, I will tell the students to examine the water. Does it look clean? Were all of the pollutants removed? How does the water look different than it did before the experiment began? Why were some pollutants easier to remove than others?

I will ask the students to share as a group their thoughts on the experiment as they answer those questions. I will then have the students take out a sheet of paper. I will tell them to consider the things that they discussed as a group and their findings after completing the experiment. I will have them write a paragraph giving at least 1-2 (1 for focus/IEP students) reasons why it is important to prevent water pollution.

1. **Closure:**

As the students finish up their paragraphs I will allow a few (up to 3) students share their work with the class. As a conclusion, I will ask the students to tell me what the lesson consisted of.

*“Okay now as we wrap things up who can tell me what we learned today?*

Allow the students to briefly explain the lesson objective in their own words. I will then redirect their attention back to the experiment and challenge them to do the same experiment at home with their parents. Next, I will then let the students know that they will continue discovering ways in which water effects our lives in the next lesson. (10 minutes)

1. **Assessment**

During the workshop phase of the lesson students will be required to discuss their thoughts on the experiment, as well as how they think water pollution is caused and rectified. Students will also be instructed to do a turn and talk about their findings from the water pollution experiment so that each student is responsible for contributing to the conversation.

As students work on their paragraphs during the workshop phase of the lesson, I will circulate the room to make sure that everyone is on task, following directions and to answer any questions or guide students who may need a little bit of extra help.

Once the students complete their paragraphs, they will be graded based on the following rubric:

|  |  |  |  |
| --- | --- | --- | --- |
|  | **1** | **2** | **3** |
|  | **Needs Improvement** | **Progressing** | **Excellent** |
| **Clarity** | **Student does not include a reason why water pollution should be prevented. Sentence structure is confusing.** | **Student includes 1 or fewer reasons why pollution should be prevented but the sentence is unclear and does not relate to the reason(s) given. Sentence structure lacks consistency.** | **Student includes 1-2 clear reasons why water pollution should be prevented and uses good sentence structure.** |
| **Organization** | **Sentences do not flow or use any transition phrase.** | **Sentences mostly flow and uses some transition phrases.** | **Sentences flow logically from idea to idea, includes key transition phrases.** |
| **Accuracy** | **Sentences include many punctuation errors and does not contain correct information.** | **Sentences include some punctuation errors. Some information is not correct.** | **Sentences include correct punctuation and correct information as related to the topic/experiment.** |

**9. Differentiation**

Within our class we have a minimum of 6 students with IEPs ranging from below grade level reading to Emotional Disturbance and Speech and Language. To accommodate these students, I will require that those who are below grade level or or have expressive/ receptive challenges to provide 1 reason why preventing water pollution is important within their sentences. They may also be allowed to draw a picture and label or verbally describe their reason. For my student who has an issue with maintaining his attention during tasks, he will also be allowed to verbally tell me his details, and complete a drawing to document his understanding of the lesson objective.